Chiral Separation of Biologically Important Compounds by High-Performance Separation Methods Using Macrocyclic Antibiotics

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Abstract

The aim of this thesis was to study retention and enantioseparation behavior of selected biologically active compounds by high performance liquid chromatography and capillary liquid chromatography on chiral stationary phases based on glycopeptide antibiotics.

The retention and enantioseleparation behavior of selected profen non-steroidal anti-inflammatory drugs (NSAIDs) on a teicoplanin aglycone (TAG) CSP in cLC under various mobile phase compositions was studied. As the chiral capillaries are not commercially available, three capillary columns, packed with TAG stationary phase using the same procedure, were tested to evaluate the repeatability and reproducibility. The cLC results for a set of profen NSAIDs were compared with the HPLC results obtained on the TAG CSPs under the identical separation conditions.

The evaluation of the enantioselective performance of two commercially available teicoplanin (T) CSPs with different chiral selector (CS) coverage, *i.e.*, Chirobiotic T and T2 was carried out for three groups of structurally diverse chiral compounds. These compounds were chosen from diverse application fields, namely amino alcohols (β-blockers, adrenergic antagonist drugs), chlorophenoxypropionc acids (CPPAs, herbicides) and branched-chain amino acids (food supplements). Their enantiomeric behaviour on the T CSPs in various separation modes was examined and compared.